REMARKS/ARGUMENTS

Claims 3 and 5-6 are rejected as anticipated or obvious over Shinma (US 6,471,501). Although Shinma teaches a device for a different purpose, the Examiner has interpreted features thereof as meeting the claims since the material to be worked is not a claim limitation.

Claim 3 is amended so as better avoid the Examiner's interpretation, in particular, to clarify the relation between "upper pressing plate" or "lower pressing plate" and "step structure". Although the material to be worked is mentioned in the claim, this is only with respect to the orientation of the apparatus feature. A further limitation is also added to more particularly define the structure of "step structure."

More specifically, it is made clear that the "step structure" is disposed at a surface that will contact during hot pressing, one of quartz crystal substrate held by "upper pressing plate" or "lower pressing plate". This amendment is based on paragraph [0061] (specification, page 25, first paragraph) of the publication.

And it is also specified that period of the "step structure" is from several microns to several tens of microns, and the "step

structure" has a plurality of periodic protruding parts. This amendment is based on paragraph [0003] (specification, page 2, lines 8-15) of the publication.

To help explain the differences, below are two figures which show embodiments made for reference and explanation, based on Fig. 1 and description of paragraph [0061] of publication (page 25, first paragraph of specification). Element 11 shows the disposition of the quartz crystal substrate during pressing, 12 shows upper block, 13 shows lower block, 14 shows upper heater block, 15 shows upper pressing plate, 16 shows lower heater block, 17 shows lower pressing plate, 18 shows heater, 19 shows lower plate, 20 shows bearing block, and 21 shows upper plate. A is period of a periodic step structure.

S_A and S_B show surfaces that are disposed on the apparatus to contact with the quartz crystal substrate, and X shows a periodic step structure that has period from several microns to several tens microns.

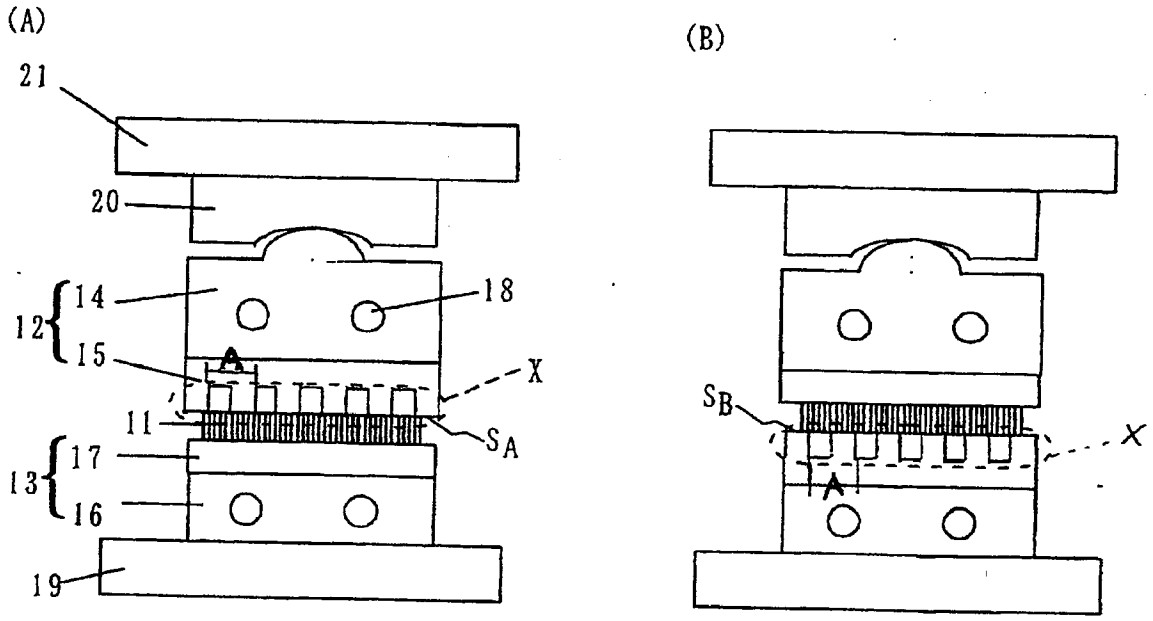

Fig. (A) shows a pressing apparatus that has a periodic step structure X with a plurality of periodic protruding parts having period from several microns to several tens microns as well as satisfying quasi-phase match condition of the quartz crystal at the surface SA of the upper pressing plate 15 which contacts with the quartz crystal substrate 11.

Fig. (B) shows a pressing apparatus that has a periodic step structure X with a plurality of periodic protruding parts having period from several microns to several tens of microns as well as satisfying quasi-phase match condition of the quartz crystal at the surface SB of the lower pressing plate 17 which contacts with

the quartz crystal substrate 11. Other parts of (B) is the same as (A).

Claim 3 as now amended specifies the lower block 13 which is composed of the lower heater block 16 and the lower pressing plate 17, the upper block 12 which is composed of the upper heater block 14 and the upper pressing plate 15 and the bearing block 20 that is connected to the upper heater block 14.

Furthermore, claim 3 has the limitation that surfaces SA or SB to be contacted with the quartz crystal substrate 11 in either the lower pressing plate 17 or the upper pressing plate 15 has a step structure X with plurality of periodic protruding parts satisfying quasi-phase matching condition for the quartz crystal and having the period A (from several microns to several tens tons microns).

By having above-mentioned structure, when the device is used, the quartz crystal substrate 11 that contacts with the lower pressure plate 17 or the upper heater block 15, is pressed by the plurality of periodic protruding parts. As a result, "a periodic twin structure satisfying quasi-phase matching condition for the quartz crystal and having the period from several microns to several tens of microns" is formed at the surface of the quartz

crystal substrate 11.

Therefore, the device allows that any quartz crystal substrate can be used in the pressing apparatus of claim 3, without pre-making the step structure with a plurality of periodic protruding parts at the surface of quartz crystal substrate 11. As a result, as shown in paragraph [0061] (page 25, first paragraph of specification) for example, a preliminary process for making the surface of each quartz crystal substrate 11 with a plurality of periodic protruding parts, can be omitted.

Referring to the rejection of Claims 3 and 5-6 as anticipated or obvious over Shinma, the Examiner relies on Shinma to disclose a mold for making semiconductor devices with a press plate 23, an inner die 60, balancer 21, a spherical bearing projection 24, a balance lock mechanism 25, a heat plate 22, and heaters 71, 72. And the examiner also points out that the press plate 23 or the inner die can be interpreted as a protruding portion equivalent to the claim requirement.

However Shinma does not disclose or suggest that the press plate 23 (or inner die 60) has protruding portions and that a surface to be contacted with the semiconductor device 15 (corresponding to the quartz crystal substrate 11 of the present

invention) in the press plate 23 (or inner die 60) has a step structure with a plurality of periodic protruding parts satisfying quasi-phase matching condition for the semiconductor device (correspond to the quartz crystal 11 of the present invention) and having the period from several microns to several tens tons microns.

More precisely, as shown in Fig. 1, and Figs. 9-12, the semiconductor device 15 is disposed on inner die 60, and molten resin 16 is set at the center of the semiconductor device 15. Then, the inner die 60 achieves the press-molding process of the resin 16 in cooperation with the press plate 23. None of Fig. 1 and Figs. 9-12 shows a plurality of periodic protruding parts at the surface of inner die 60 that contacts with the semiconductor device 15 or at the press plate 23 that contacts with the semiconductor device 15. And also no "step structure that satisfies quasi-phase matching condition for the semiconductor device (correspond to the quartz crystal 11 of the present invention) and having the period from several microns to several tens of microns" exists at the surface of the inner die 60 or the press plate 23.

Since Shinma has a different purpose, it is not obvious to modify its structure to meet the present invention structure

requirements, as claimed. As detailed below, Shinma does not have a protruding part as claimed in Claim 3.

In Shinma, one of elements that may be interpreted as a protruding part is molten resin 16. However, in Fig. 1, Fig. 6, Fig. 9, and Fig. 10, the molten resin 16 is disposed at the surface of neither the inner die 60 nor the press plate 23. It is directory and singly disposed on the semiconductor device 15 disposed on the inner die 60. There is no description that size of the molten resin 16 is in the order of micro meter. Therefore, the molten resin 16 does not correspond to "step structure with a plurality of periodic protruding parts satisfying quasi-phase matching condition for the quartz crystal 11 and having the period from several microns to several tens tons microns" recited in new claim 3. Also, because Shinma has a different object, there is no reason to modify Shinma to meet the present invention apparatus limitation.

Another element that may meet the protruding part requirement is guide projection 67. However, as shown in Fig. 6, the guide projection 67 does not exist at the surface that contacts with the semiconductor device 15 on the inner die 60 (it exists at the surface that faces to the surface that contacts with the semiconductor device 15) and exists alone (not plural). And there

is no description that size of the guide projection 67 is order of micro meter. Therefore, the guide projection 67 does not corresponds to "step structure with a plurality of periodic protruding parts satisfying quasiphase matching condition for the quartz crystal 11 and having the period from several microns to several tens tons microns " recited in new claim 3. Nor is there any reason to modify the structure to meet this requirement.

Another element that may meet protruding part requirements is an outer die 61 shown in Fig. 1, Fig. 6, and Figs. 8-13. The outer die 61 has a step structure against the inner die 60. However, shape of it is donut shape as shown in Fig.7 and does not have plurality of periodic protruding parts. Therefore, the outer die 61 does not corresponds to "step structure with a plurality of periodic protruding parts satisfying quasi-phase matching condition for the quartz crystal 11 and having the period from several microns to several tens tons microns" recited in new claim 3.

As discussed above, Shinma does not disclose nor suggest the limitation of claim 3, that a surface to be contacted with the quartz crystal in either the lower pressing plate or the upper pressing plate has a step structure with a plurality of periodic protruding parts satisfying quasi-phase matching condition for the

quartz crystal and having the period from several microns to several tens tons microns.

Furthermore, with respect to the anticipation part of the rejection, "inherent anticipation" must be certain. The Examiner's interpretation of features of the art as probably meeting the claim requirements or as being within the skill of the art, are not statements of certainty. Therefore, it is submitted that a prima facie anticipation rejection is not of record even before the new amendments. The claims as now presented are clearly not anticipated by the art as detailed above.

In view of the above, claim 3 is not anticipated or obvious over Shinma and Claims 5 and claim 6 are also not anticipated or obvious over Shinma because they are dependent on claim 3.

In view of the above, allowance of the application is respectfully requested.

Respectfully submitted,

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